

### REMARKS

Applicants thank the Examiner for the thorough consideration given the present Application. Claims 1, 3, 5, 7, 8, 10, 12, and 14-28 are pending in the present Application. By this response, claims 2, 4, 6, 9, 11, and 13 are cancelled, claims 1, 3, 5, 7, 8, 10, 12, and 14 are amended, and claims 15-28 are added. Claims 1 and 8 are independent claims.

### Specification Objections

The Office Action states that the specification of the present Application contains the word “bolts” where it should contain the word “volts” and requests appropriate correction. Applicants have amended the specification in accordance with the request of the Office Action. Accordingly, reconsideration and withdrawal of this objection is respectfully requested.

### Claim Objections

Claims 1 and 8 are objected to in the Office Action due to informalities related to the use of the word “mean” where it appears the word “means” was intended. Applicants have amended the claims according to the corrections suggested in the Office Action. Accordingly, reconsideration and withdrawal of this objection is respectfully requested.

### Scope of Amendments

Applicants respectfully submit that independent claim 8 is amended only as much as was suggested by the Office Action to overcome claim objections due to informalities. No substantive amendments affecting the scope or content of independent claim 8 are introduced in this Response.

Applicants further respectfully submit that independent claim 1 is amended only as much as was suggested to by the Office Action to overcome claim objections due to informalities, and also to overcome the 35 U.S.C. § 112 rejection. No other amendments to independent claim 1 are introduced in this Response.

Claim Rejections – 35 U.S.C. § 112

Claims 1 and 8 stand rejected under 35 U.S.C. § 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

**Claim 1**

With respect to claim 1, the Office Action states that there is insufficient antecedent basis for the phrase “outputting a pulsed signal having a frequency even times the frequency of the local oscillation signal to a pulse output terminal.” Applicants have amended this portion of claim 1 to now read “outputting a pulsed signal having a frequency even times a frequency of the local oscillation signal to a pulse output terminal.” Accordingly, reconsideration and withdrawal of this rejection is respectfully requested.

**Claim 8**

With respect to claim 8, the Office Action states that there is insufficient antecedent basis for the phrase “outputting a pulsed signal having a frequency even times the frequency of the local oscillation signal to a pulse output terminal.” Applicants respectfully submit that the Office Action misquotes the claim language, which currently reads “outputting a pulsed signal having a frequency even times a frequency of a local oscillation signal to a pulse output terminal.” Accordingly, reconsideration and withdrawal of this rejection is respectfully requested.

Claim Rejections – 35 U.S.C. § 102

Independent claim 8 stands rejected under 35 U.S.C. § 102(b) as being anticipated by U.S. Patent 5,020,079 to Vancraeynest (hereinafter “Vancraeynest”). Insofar as it pertains to the presently pending claim, this rejection is respectfully traversed.

Applicants respectfully submit that this rejection is incomplete because the Office Action states that for claims 1-14, “examiner will view the claims as if the [material rejected under 35 U.S.C. § 112] is not included in the claims.” (Page 3 of Office Action). Because the § 112 rejection with respect to claim 8 is incorrect, Applicants respectfully submit that the Office Action improperly fails to address a material limitation of independent claim 8.

Assuming, *in arguendo*, that the Office Action intended for the applied reference to cover all the limitations of independent claim 8, Applicants respectfully submit that Vancraeynest does not teach or suggest “outputting a pulsed signal having a frequency even times the frequency of the local oscillation signal to a pulse output terminal” as required by independent claim 8.

Vancraeynest teaches an apparatus for generating minimum-shift-keying (MSK) digital modulation signals. (Col. 1, lines 8-10). Specifically, Vancraeynest teaches upconverting an MSK signal by mixing the generated MSK signal with a local oscillator signal prior to bandpass filtering and signal output. (Col. 3, lines 13-28). Vancraeynest discloses the relationship between the frequency of the pulsed output signal ( $f_{RF}$ ) and the local oscillation signal ( $f_{LO}$ ) as:  $f_{RF} = f_{LO}(1 \pm (2n+1)/(2n(n+1)N))$ , where  $n$  and  $N$  are both integers. (Col. 3, lines 39-51 and Col. 5, lines 53-61)

The factor relating the local oscillation signal to the pulsed output signal,  $(1 \pm (2n+1)/(2n(n+1)N))$ , cannot ever be an integer. Because  $n$  is an integer, the expression  $(2n+1)$  must always be an odd number. This is because 2 times any integer produces an even number; therefore adding 1 to that number will always produce an odd number, so  $(2n+1)$  will always be odd. The denominator,  $2n(n+1)N$ , will always be even. This can be better appreciated by re-writing the expression as  $2(n^2N+nN)$ . Regardless of whether  $n^2N+nN$  is odd or even, multiplying it by 2 will subsequently produce an even number. The expression  $(2n+1)/(2n(n+1)N)$  will therefore always result in an odd number divided by an even number. It is a known property of numbers that an odd number divided by an even number will never produce an integer as a result. Therefore  $(1 \pm (2n+1)/(2n(n+1)N))$  will never be an integer. Vancraeynest can therefore never satisfy the requirement of “outputting a pulsed signal having a

frequency even times the frequency of the local oscillation signal” as required by independent claim 8. Accordingly, reconsideration and withdrawal of this rejection is respectfully requested.

Claim Rejections - 35 U.S.C. § 103 – Vancraeynest and Hiramatsu

Independent claim 1 stands rejected under 35 U.S.C. § 103(a) as being unpatentable over Vancraeynest in view of U.S. Patent 5,091,705 to Hiramatsu (hereinafter “Hiramatsu”). Insofar as it pertains to the presently pending claims, this rejection is respectfully traversed.

With respect to independent claim 1, Hiramatsu is relied upon to teach a branching means for receiving a local oscillation signal from a local oscillation wave input terminal. The Office Action cites Column 4, lines 41-45 as supporting this teaching of Hiramatsu.

Claim 1 recites, in part, a branching means “for outputting a pulsed signal having a frequency even times a frequency of the local oscillation signal to a pulse output terminal.” Applicants respectfully submit that the teachings of Vancraeynest are deficient with respect to this aspect of independent claim 1 for the same reasons as stated above in connection with independent claim 8. Applicants further submit that Hiramatsu is not relied upon, nor can it be properly relied upon, to remedy the above deficiency in the teachings of Vancraeynest with respect to independent claim 1. Applicants therefore respectfully submit that neither Vancraeynest nor Hiramatsu, either alone or in combination (assuming the references may be combined, which Applicants do not admit) teach or suggest a branching means “for outputting a pulsed signal having a frequency even times a frequency of the local oscillation signal to a pulse output terminal” as required by independent claim 1. Accordingly, reconsideration and withdrawal of this rejection is respectfully requested.

Claim Rejections - 35 U.S.C. § 103 – Dependent Claims

Claims 2, 3, and 5 stand rejected under 35 U.S.C. § 103(a) as being unpatentable over Vancraeynest as modified by Hiramatsu in further view of U.S. Patent 4,266,201 to Belfatto (hereafter “Belfatto”).

Claim 4 stands rejected under 35 U.S.C. § 103(a) as being unpatentable over Vancraeynest as modified by Hiramatsu in further view of U.S. Patent Publication 2001/0022540 by Hill (hereafter "Hill").

Claim 6 stands rejected under 35 U.S.C. § 103(a) as being unpatentable over Vancraeynest as modified by Hiramatsu in view of Belfatto in further view of U.S. Patent 3,673,515 to Kersten (hereafter "Kersten").

Claim 7 stands rejected under 35 U.S.C. § 103(a) as being unpatentable over Vancraeynest as modified by Hiramatsu in further view of U.S. Patent 5,495,208 to Gonzalez (hereafter "Gonzalez") and U.S. Patent 4,954,791 to Koenig (hereafter "Koenig").

Claims 9, 10, and 12 stand rejected under 35 U.S.C. § 103(a) as being unpatentable over Vancraeynest in view of Belfatto.

Claim 11 stands rejected under 35 U.S.C. § 103(a) as being unpatentable over Vancraeynest in view of Hill.

Claim 13 stands rejected under 35 U.S.C. § 103(a) as being unpatentable over Vancraeynest in view of Belfatto and Koenig.<sup>1</sup>

Claim 14 stands rejected under 35 U.S.C. § 103(a) as being unpatentable over Vancraeynest in view of Gonzalez and Koenig.<sup>2</sup>

Claims 2, 4, 6, 9, 11, and 13 are cancelled, rendering their rejections moot. As to the remaining rejections, insofar as they pertain to the presently pending claims, these rejections are respectfully traversed.

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<sup>1</sup> Applicants think that the Examiner meant to reject Claim 13 using Kersten, not Koenig, as Koenig does not use 2-digit reference numbers in its drawing figures.

<sup>2</sup> Applicants think the Examiner meant to reject Claim 14 using Kersten for the same reasons as in footnote 1.

Applicants respectfully submit that dependent claims 3, 5, 7, 10, 12, and 14 are allowable at least by virtue of their dependency on independent claims 1 and 8. Applicants submit that none of Hiramatsu, Belfatto, Hill, Kersten, Gonzalez, or Koenig are relied upon in the Office Action, nor can they be properly relied upon, to remedy the defects of Vancraeynest with respect to independent claims 1 and 8. Applicants therefore respectfully submit that none of Vancraeynest, Hiramatsu, Belfatto, Hill, Kersten, Gonzalez, or Koenig, taken alone or in combination (assuming the references may be combined – which Applicants do not admit) teach or suggest a branching means “for outputting a pulsed signal having a frequency even times a frequency of the local oscillation signal to a pulse output terminal” as required by independent claims 1 and 8. Accordingly, reconsideration and withdrawal of these rejections is respectfully requested.

#### New Claims

Applicants respectfully submit that new dependent claims 15-28 are allowable for the same reasons as those presented for dependent claims 3, 5, 7, 10, 12, and 14.

Conclusion

Should there be any outstanding matters that need to be resolved in the present application, the Examiner is respectfully requested to contact Naphtali Y. Matlis (Reg. No. 61,592) at the telephone number of the undersigned below, to conduct an interview in an effort to expedite prosecution in connection with the present application.

If necessary, the Commissioner is hereby authorized in this, concurrent, and future replies to charge payment or credit any overpayment to Deposit Account No. 02-2448 for any additional fees required under 37.C.F.R. §§1.16 or 1.14; particularly, extension of time fees.

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Respectfully submitted,

By 

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